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10/26/2010

EXAMINER

TORRES WILLIAMS, MELANIE

ART UNIT

PAPER NUMBER

3657

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bommier et al. ('746) in view of Olcott or Johnson.

Bommier et al. teaches an aircraft brake heat pack brake disc comprising an annular core layer having an outer perimeter and a face portion and an annular wear layer for frictional engagement with an adjacent brake disc, the annular wear layer attached to and extending across the face portion, wherein the core layer is a C-C composite article and wear layer is a C-C composite article and has a density lower than the core layer. (Fig. 2,5, Column 5, lines 9-54)

Bommier et al. does not teach wherein the core layer is impregnated with a refractory carbide.

Olcott and Johnson teach a C-C composite article impregnated with refractory carbide. It would have been obvious to one of ordinary skill in the art at the time the invention was made to impregnate a C-C wear layer with refractory carbide to improve the adhesion characteristics of wear layers and to provide improved heat sink capabilities for use in making friction materials. (See Johnson, Abstract and Olcott, Column.2, lines 45-66)

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3. Claims 2, 6, 7, 9, 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bommier et al. ('746) in view of Olcott or Johnson as applied above in view of Purdy (022) or Dietrich et al (525).

It would have been obvious at the time the invention was made to select the density of the core to wear layer in each of the principal references to be with the core density 1.85 gcm⁻³ to 2.95 gcm⁻³ and the wear layer(s) 1.85 gcm⁻³ or lower as taught by each of the secondary references to reduce weight and by routine experimentation which leads to optimum ranges without sacrificing the brakes ability to operate within acceptable wear frames and weight and heat concerns. It would have been obvious at the time the invention was made to modify the prior art to select the core layer to have a greater density than the wear layer with the specific ranges taught by Purdy or Dietrich et al in order to reduce costs and it would have been obvious to the artisan in the art to manipulate the ratios of density, lengths, sizes, etc., as taught by the secondary references and, in the alternative, to select the specific ranges through routine trial and error during routine experimentation to select the optimum ranges to arrive at the best and most cost effective solution to promote strength, good wear capabilities, good heat reduction and weight concerns.

Further, re claims 6 and 15, Olcott and Johnson teach a C-C composite article impregnated with a refractory carbide. It would have been obvious to one of ordinary skill in the art at the time the invention was made to impregnate a C-C wear layer with refractory carbide to improve the adhesion characteristics of wear layers and to provided improved heat sink capabilities for use in making friction materials. (Column 2, lines 45-66)

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Response to Arguments

4. Applicant's arguments filed July 23, 2010 have been fully considered but they are not persuasive. Applicant argues that the densities are related to the perform prior to densification. However, in column 12, lines 7-12 the densities of the wear layer and core layer after densification are clearly taught.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MELANIE TORRES whose telephone number is (571)272-7127. The examiner can normally be reached on Monday (6AM - 4:30PM), and Tuesday (6AM-12PM).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Siconolfi can be reached on 571-272-3600. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MTW
October 25, 2010

/Melanie Torres Williams/
Primary Examiner, Art Unit 3657